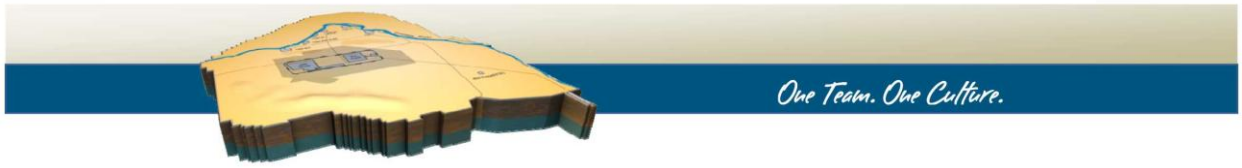

Administrative Procedure

PRC-PRO-SH-40145

Maintaining MSA OptimAir 6A Powered Air Purifying Respirators

Revision 0, Change 0

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Project: CH2M HILL Plateau Remediation Company
Topic: Occupational Safety and Industrial Hygiene

Technical Authority: M.J. Schmoldt
Functional Manager: T.L. Vaughn

Administrative Use

CH2MHILL
Plateau Remediation Company

CHANGE SUMMARY

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Description of Change

8/19/09, Rev0-0: New procedure to document the maintenance and care of the MSA OptimAir 6A.

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1.0 INTRODUCTION

Occupation Safety and Health Administration (OSHA) regulations and National Institute for Occupational Safety and Health (NIOSH) certification requires that a maintenance program be established for respiratory protection equipment. The maintenance program must include cleaning, component inspection, and replacement of worn or damaged parts (i.e. external breathing tube inlet and cartridge gaskets).

1.1 Purpose

This procedure is to provide instructions for the required inspection and charging of MSA OptimAir 6A Powered Air Purifying Respirators (PAPRs).

1.2 Scope

This maintenance program provides instructions for issuance station personnel to perform equivalent services.

1.3 Applicability

This applies to each CHPRC organization that performs issuance of MSA OptimAir 6A Powered Air Purifying Respirators (PAPRs).

1.4 Implementation

It is effective upon the publication date shown in the header.

2.0 RESPONSIBILITIES

Line supervisors are responsible for verifying that personnel using portions or all of this procedure are adequately trained and can successfully perform assigned duties.

This procedure is to be performed by designated personnel adequately trained to this procedure. Since there are no user serviceable parts on this equipment, the issuer is not required to be factory trained.

3.0 PROCESS

The most current version of the MSA OptimAir 6A Manufacturer's Instructions for use are to be followed. Copies of the instructions are posted on the CH2M HILL Plateau Remediation Company (CHPRC) respiratory protection website.

If a *CH-PRC Respiratory Problem or Complaint Form* (A-6001-893) is submitted to the issuance station along with a PAPR, any suspect damaged items should be evaluated and discarded with concurrence of your respiratory protection Subject Matter Expert, if they are damaged or questionable. Notes on the issue should be included on the appropriate Attachments.

No repairs are authorized for internal worn or damaged parts. Issuers may only change out external parts such as gaskets and O-rings.

3.1 Initial PAPR acceptance Inspection

Each battery and blower unit is to be given a unique and permanent identification number. This unique number is recorded on a PAPR Blower Inspection Log (Attachment 1), Daily PAPR Battery Charging Log (Attachment 2), and Monthly PAPR Battery Charging and Inspection Log (Attachment 3) by the issuance station to track maintenance. The log will include the date of manufacture for batteries and a record of inspection performed.

Any damaged or questionable parts are to be documented on the PAPR Blower Inspection Log (Attachment 1), Daily PAPR Battery Charging Log (Attachment 2) and Monthly PAPR Battery Charging and Inspection Log (Attachment 3) and discarded.

3.2 PAPR Exterior Cleaning

The PAPR must have been cleared of any radiological, chemical, or biological contamination prior to being returned to the issuance station. All components of the PAPR assembly (i.e., blower-motor, breathing tube, battery, face-piece, hood, and belt) must be cleaned or discarded after each use.

This cleaning can be accomplished by an external wiped down with a damp towel or sponge if any dust or grime is present. MSA Confidence Plus™ Germicidal Cleaner (CPC) or equivalent cleaning solution may also be used. Do not immerse the blower-motor or breathing tube in water; simply wipe down the exterior surfaces. To clean the breathing tube, all external surfaces including the spaces between the kinks on the hose are to be thoroughly wiped down.

Respirator tight fitting masks must be sent to UniTech laundry service for cleaning. Loose fitting hoods are disposed of or may be reused with concurrence from the user if they are confirmed to be uncontaminated properly stored, and are used by the same person. Cleaning of loose fitting hoods is not authorized. Loose fitting hood harnesses or hard hats may be wiped down as described below to remove surface grime or discarded.

3.3 Pre Assembly and Monthly Blower-Motor Inspection

The blower-motor must be checked for the following and document the monthly inspection on the PAPR Blower Inspection Log (Attachment 1):

- Visually inspect the case, filter threads, filter seating area, and visible internal wiring for damage.
- Ensure that electrical terminals are “finger tight” and not loose.
- Ensure that the filter gaskets are present and in good condition.
- Ensure the function of the blower-motor by attaching a battery and turning it on.
    - If the unit fails, obtain a different charged battery and turn unit on.
        - Ensure batteries and blowers are cross-checked to determine the defective blower or battery.
- Using the MSA flow check device (ball-in-tube), verify the minimum required flow (4 cubic foot per minute (CFM) for masks and 6 CFM for hoods)for the cartridges installed on the blower.

- For a monthly inspection use the MSA flow check device (ball-in-tube), verify the minimum flow of 6 cubic foot per minute with P-100 cartridges installed on the blower.
- Record findings and checkmark if the blower passed or failed (P/F) the inspection on the PAPR Blower Inspection Log (Attachment 1).
- Discard the blower-motor if it fails this inspection.

If conducting a monthly inspection and the blower assembly passes:

- Upon passing this inspection, apply a sticker to the blower-motor with an expiration date 30 days from the inspection.

3.4 Pre Assembly and Monthly Nickel Cadmium Battery Inspection

The battery must be checked for the following and documented on the Daily PAPR Battery Charging Log (Attachment 2) and the Monthly PAPR Battery Charging and Inspection Log (Attachment 3):

- Check for any signs of damage to the exterior of the battery.
- Confirm the battery is less than three years from the date of manufacture.
- Verify that the battery is charging properly as indicated by the light-emitting diodes (LEDs) on the charger (Table 1).

Table 1. Charger Status Indicators Single Rate Charger

Power Base Status	*LED Status*
Power is OK, ready to start charging.	Steady Green.
Excess current, not ready to charge.	Steady Yellow.
Too hot.	Steady Red.

Table 2. Charger Status Indicators Dual Rate Charger

Power Base Status	*Amber LED (Charge)*	*Green LED (Ready)*
Good battery pack; accepting charge at trickle rate	ON	ON
Bad battery pack; current flowing but improper battery pack voltage; replace battery.	ON	OFF
High-resistance circuit or bad battery pack; check that charging plug is clean and fully inserted in jack; if light still remains on, discard battery.	OFF	ON
No power or battery pack; check that charger is plugged in (120VAC); check cable to battery pack; internal open circuit; discard battery.	OFF	OFF

- Verify the battery will produce adequate flow as measured in Section 3.3.
    - If the unit fails, obtain a different charged battery and turn unit on.
        - Ensure batteries and blowers are cross-checked to determine the defective blower or battery.
- Repeat charging no more than once if the first charge results do not pass the step above and clarify what the expectation is for repeat charging; i.e., trickle, deep, discharge, etc.
- If the battery fails this inspection, mark the battery as “out of service” and discard the battery in accordance with waste management requirements.
- Upon passing this inspection, apply a sticker to the battery with an expiration date 30 days from the inspection.

If conducting a monthly inspection and the battery passes:

- Record findings and checkmark if the battery passed or failed (P/F) the inspection on Attachment 2.

3.5 Nickel Cadmium Battery Shelf Life and Conditioning

NOTE: *Charged NiCad batteries lose approximately 1% of their charge/day if left in storage.*

NOTE: *NiCad batteries should not be fully discharged. Do not let them run until dead, it may damage the cells.*

The battery must be checked for the following and documented on Attachment 2.

Batteries removed from the charger in excess of 15 days may not be issued for use until a full charge is verified. This activity must be logged along with the battery unique identification number on the PAPR Battery Charging and Inspection Log (Attachment 2).

In service Batteries must be deep charged every 30 days,

The blower-motor will be verified to produce the required flow rate as described in Section 3.3. This activity must be logged along with the battery unique identification number on the Monthly PAPR Battery Charging Log (Attachment 3).

1. Ensure batteries are fully charged
2. Assemble units with P-100 and hose
3. Run the blower unit for 6 hours
4. Verify flow rate of 6CFM if using hose for hood 4CFM if using hose for masks
5. Run the blower unit for another 1 hour
6. Place batteries on charger until fully charged

- Document and initial 6 hour discharge
- Document begin charge time and date and initial
- Document end charge time and date and initial

3.6 Breathing Tube Inspection

- The breathing tube must be visually inspected for any signs of damage, cracks, cuts, holes, or missing O-ring. Replace O-rings if they appear to be damaged or are missing.
- Any damaged breathing tube must be discarded.

3.7 Belt Inspection

- The belt and buckle should be visually inspected for any signs of damage.
- Any damaged belts or buckled must be discarded.
- Belts cut to shorten them can still be re-used.

3.8 Flow Check Device

The MSA flow check device is a ball-in-tube indicating if 4 CFM or 6 CFM flow rates are being produced by the blower-motor unit. It is used to verify adequate flow in Section 3.3 and can also be used by the PAPR user, as an option, to verify flow prior to donning the PAPR. There are no mechanical parts and wear from use does not affect the ability of the device to measure CFM flow rates of air through the blower-motor.

The flow check device must be discarded if it is visibly damaged or broken.

3.9 Long-Term Storage and Disposition of Equipment

Equipment that is not used for 30 days or more should be run through Sections 3.3 to 3.8 before being returned to use. If units may not be used in the near future, they should be kept in clean, temperate-controlled storage areas and identified as temporarily out of service. If units are no longer needed, the equipment should be transferred to convenience storage. Equipment in convenience storage will be reviewed periodically to determine if it should be re-distributed, disposed of, or managed as surplus property.

Long-term storage or removal of PAPRs from inventory must be recorded on the PAPR Blower Inspection Log (Attachment 1).

4.0 FORMS

Powered Air Purifying Respirator Blower Inspection Log (Attachment 1)
Daily Powered Air Purifying Respirator Battery Charging Log (Attachment 2)
Monthly Powered Air Purifying Respirator Battery Charging and Inspection Log (Attachment 3)
CH-PRC Respiratory Problem or Complaint Form (A-6001-893)

5.0 RECORD IDENTIFICATION

All records are generated, processed, and maintained in accordance with PRC-PRO-IRM-10588, *Records Management Processes*.

Records Capture Table

Name of Record	Submittal Responsibility	Retention Responsibility	OCRWM Retention Schedule (If OCRWM Related)
Powered Air Purifying Respirator Blower Inspection Log	Inspector	Supervisor	N/A
Daily Powered Air Purifying Respirator Battery Charging and Inspection Log	Inspector	Supervisor	N/A
Monthly Powered Air Purifying Respirator Battery Charging and Inspection Log	Inspector	Supervisor	N/A
Powered Air Purifying Respirator Battery Charging Log	Inspector	Supervisor	N/A
CH-PRC Respiratory Problem or Complaint Form (A-6001-893)	Inspector	RPPA	N/A

6.0 SOURCES

6.1 Requirements

PRC-RD-SH-36716, *Respiratory Protection Program Requirements*
PRC-PRO-SH-120, *Respiratory Protection Program*

6.2 References

OptimaAir 6A Powered Air-Purifying Respirator Assembly (see CHPRC website for current version)
PRC-PRO-IRM-10588, *Records Management Processes*

Attachment 1
Monthly Powered Air Purifying Respirator Blower Inspection Log

Blower ID:_____

Date Placed in Service:_____

Flow Verified Date / Time	Initial	P	F	Comments

Pass (P) / Fail (F)

Attachment 2
Daily Powered Air Purifying Respirator Battery Charging and Inspection Log

Battery ID	Begin Charge Date / Time	Initial	End Charge Date / Time	Initial	P	F	Comments

Pass (P) / Fail (F)

Attachment 3
Monthly Powered Air Purifying Respirator Battery Charging and Inspection Log

Battery ID: _____ Date of Manufacture: _____

I	M	6 Hr Discharge: Start Time / Date	6 Hr Discharge: End Time	P	F	Flowrate	1 Hr Discharge: Initial	1 Hr Discharge: Start Time / Date	1 Hr Discharge: End Time	Battery back to Charger (Initial)	Comments*

Initial (I) / Monthly(M) *Pass (P) / Fail (F)* ** Include Damage*